



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,869	11/26/2003	Michael Conrad	07781.0116-00000	6085
22852	7590	05/02/2007		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER LIN, SHEW FEN	
			ART UNIT 2166	PAPER NUMBER
			MAIL DATE 05/02/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p align="center">10/721,869</p>	<p><b>Applicant(s)</b></p> <p align="center">CONRAD ET AL.</p>	
	<p><b>Examiner</b></p> <p align="center">Shew-Fen Lin</p>	<p><b>Art Unit</b></p> <p align="center">2166</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>various</u> . | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2166

### DETAILED ACTION

- a. This action is responsive to communications: application filed on 11/26/2003.
- b. Claims 1-22 are pending in this Office Action.

#### *Priority*

Applicant's claim for the benefit of a prior-filed application 60/429373, filed on 11/27/2002 under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

#### *Claim Objections*

Claim 12 recites "a previous electronic data element" although previously introduced in proceeding claims (an electronic data element). It is not clear if it is a new instance of "electronic data element" or a reference to the electronic data element in the proceeding claim.

#### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

Art Unit: 2166

ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under the judicially created doctrine obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. **10/721,898**. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are substantially similar in scope and they use the same limitations.

The following table shows the claims in Instant Application that are rejected by corresponding claim(s) in **10/721,898**.

Instant Application	Application 10/721,898
1. A computer-readable medium having stored thereon a data structure for an electronic data element comprising:	1. A method of replicating data objects from a source system to a target system, comprising: creating an electronic data element comprising
a first data field containing data representing an identifier functioning as a link to one or more data objects; and a second data field representing a state of the identifier in the first data field,	a first field having an identifier and a second field having a state of the identifier,
wherein the second data field may be one of  a) a first state, in which said electronic data element may be accessed by one or more data object processing operations and whereby said identifier is assignable to one or more data objects, b) a second state, in which said electronic data element may not be accessed by one or more data object processing operations and whereby said identifier is assignable to one or more data objects, or c) a third state, in which said electronic data element may not be accessed by one or more data object processing operations and whereby said identifier is not assignable to one or more	wherein the state of the identifier may be set to:  a) a first state, in which said electronic data element may be accessed by one or more data object processing operations and whereby said identifier is assignable to one or more data objects stored in a memory, b) a second state, in which said electronic data element may not be accessed by one or more data object processing operations and whereby said identifier is assignable to one or more data objects stored in a memory, or c) a third state, in which said electronic data element may not be accessed by one or more data object processing operations and whereby said identifier is not assignable to one or more

Instant Application	Application 10/721,898
data objects.	data objects; assigning the identifier to one or more data objects stored in a memory;
	assigning a state to the identifier stored in a memory; and replicating the one or more assigned data objects from a memory in the source system to a memory in the target system if the state of the identifier is the third state.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### *Claim Rejections – 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. They merely present an abstract idea without any practical application that produces a useful, concrete, and tangible result.

Claim 1 recites a data structure stored on a computer readable medium. However, the program/algorithm itself merely manipulates data or an abstract idea, or merely solves a mathematical problem without a limitation to a practical application. A practical application exists if the result of the claimed invention is “useful, concrete and tangible” (with the emphasis on “result”)(Guidelines, section IV.C.2.b). A “useful” result is one that satisfies the utility requirement of section 101, a “concrete” result is one that is “repeatable” or “predictable”, and a “tangible” result is one that is “real”, or “real-world”, as opposed to “abstract” (Guidelines,

Art Unit: 2166

section IV.C.2.b)). Claim 1 merely manipulates data without ever producing a useful, concrete and tangible result because storing a data structure with different states (values) is a mere compilation of data, therefore, non-statutory.

Regarding claims 2-22 depend from rejected claim 1, comprise the same deficiencies as those claims directly or indirectly by dependence, and are therefore rejected on the same basis.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 20 recites, "wherein during a data processing operation the electronic data elements are replicated from a source system to a target system." The relevant discussion appears in the specification at paragraph [0078], where it states:

[0078] FIG. 6 is a flow diagram of a first implementation of a data replicating process using the electronic data element consistent with the present invention. A replication process 601 selects an ID from an ID table in stage 602. In stage 603 it is checked, whether the selected ID is in state III. If yes, all stored data objects, which have that ID assigned are replicated from their source system to a target system in stage 604. If no, the replication process branches to an error routine 606, which may create an error message and which returns to stage 602 or end the process. If all data objects have been replicated, the process checks in stage 605 whether data objects of another ID are to be replicated. If yes, it branches back to stage 602, otherwise it ends in stage 607.

Art Unit: 2166

Based on the paragraph [0078], the electronic data element is used to identify data objects (not the electronic data elements) that are ready to be replicated from a source system to a target system. Therefore, "the electronic data elements are replicated from a source system to a target system" is not supported in the Specification as filed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 8, 10, 11, 19, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 10 recite the limitation "the default identifier". There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation " the second filed". There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation " the prior electronic data element ". There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitations " the share lock", "the data element". There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the electronic data elements". There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 5-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Jamil et al. (US patent Application Publication 2003/0233523, hereinafter Jamil).

As to claim 1, Jamil discloses a computer-readable medium having stored thereon a data structure for an electronic data element [figure 4, 490; figure 7, 790; figure 9a~9d, 990 all show the data element comprising Data, Status and P fields] comprising:

a first data field containing data representing an identifier functioning as a link to one or more data objects [figure 4, 490; figure 7, 790; figure 9a~9d, 990 all show the data element comprising Data, Status and P fields; the Data field is the corresponding identifier field]; and a second data field representing a state of the identifier in the first data field [figure 4, 490; figure 7, 790; figure 9a~9d, 990 all show the data element comprising Data, Status and P fields; the Status field is the corresponding state of the identifier], wherein the second data field may be one of



a) a first state [the shared state, S], in which said electronic data element may be accessed by one or more data object processing operations [according to the M (modified), E (exclusives), S (shared) and I (invalid) protocol for maintaining coherency (paragraph 0032)] and whereby said identifier is assignable to one or more data objects [figure 4, 490; figure 7, 790; figure 9a~9d, 990 show the assignment; The corresponding “one or more data objects” are the storage elements shown in figure 4, 410~480, figure 7, 710~720 and figure 9, 910~980].

b) a second state [the exclusive dirty (ED) state], in which said electronic data element may not be accessed by one or more data object processing operations [paragraphs 0035-0040] and whereby said identifier is assignable to one or more data objects [figure 4, 490; figure 7, 790; figure 9a~9d, 990 show the assignment; The corresponding “one or more data objects” are the storage elements shown in figure 4, 410~480, figure 7, 710~720 and figure 9, 910~980], or

c) a third state [the modified (M) state], in which said electronic data element may not be accessed by one or more data object processing operations [paragraphs 0035-0040] ] and whereby said identifier is not assignable to one or more data objects [figure 4, 490; figure 7, 790; figure 9a~9d, 990 show the assignment; The corresponding “one or more data objects” are the storage elements shown in figure 4, 410~480, figure 7, 710~720 and figure 9, 910~980].

**As to claim 2**, Jamil discloses the computer-readable medium of claim 1, wherein the first data field and the second data field are in a table [figure 4, 409].

**As to claim 3**, Jamil discloses the computer-readable medium of claim 1, wherein the first data field is in a first table and the second data field is in a second table [figure 7, 790, 791].

**As to claim 5**, Jamil discloses the computer-readable medium of claim 1, wherein the data structure further comprises a third data field functioning as a flag representing whether the electronic data element is the default identifier [figure 4, “P” field , paragraph (0037)].

**As to claim 6**, Jamil discloses the computer-readable medium of claim 1, wherein during a data processing operation the second field is changed from the first state to the second state [figure 4, 490; figure 7, 790; figure 9a~9d, 990 show the assignment].

**As to claim 7**, Jamil discloses the computer-readable medium of claim 6, wherein during the data processing operation the identifier is assigned to one or more data objects which are stored [figure 4, 490; figure 7, 790; figure 9a~9d, 990 show the assignment].

**As to claim 8**, Jamil discloses the computer-readable medium of claim 7, wherein during the data processing operation the second field is changed to the third state if the one or more assigned data objects are committed [modified copy 646 is received by shared storage 690, data portion 697 is updated and reassigned a status of M (paragraph 0054)].

**As to claim 9**, Jamil discloses the computer-readable medium of claim 6, wherein during the data processing operation a new electronic data element is created and the second field of the new electronic data element is set to the first state [if no data portion copies reside in a private

Art Unit: 2166

storage other than the requesting private storage. It may be assigned a new status of S according to transition 335 (paragraph 0038)].

**As to claim 10**, Jamil discloses the computer-readable medium of claim 9, wherein the data structure further comprises a third data field functioning as a flag representing whether the electronic data element is the default identifier [figure 4, "P" field], and further wherein during the data processing operation the third data field of the new electronic data element is flagged as the default identifier [figure 4, 416, prior to a data request a data portion may be given a default status of I (paragraph 0037)].

**As to claim 11**, Jamil discloses the computer-readable medium of claim 10, wherein during the data processing operation the second field of the prior electronic data element is set to the second state [figure 4, 490; figure 7, 790; figure 9a~9d, 990 show the assignment].

**As to claim 12**, Jamil discloses the computer-readable medium of claim 10, wherein during the data processing operation the third field of a previous electronic data element is examined, and, if the third field of the previous electronic data element is flagged as the default identifier, the third field of the previous electronic data element is flagged as not being the default identifier [figure 4, 416, prior to a data request a data portion may be given a default status of I (paragraph 0037), a presence encoding of 0101 indicating that data portion 412 has been provided to private storage 410 and to private storage 440 in response to data requests of a type that does not indicate a need to modify the requested data portion, (paragraph 0045)].

**As to claim 13**, Jamil discloses the computer-readable medium of claim 1, wherein during a data processing operation that sets a block on the electronic data element, the second field of the electronic data element is examined and if the state of the second field of the electronic data element is the first state or the second state, the data processing operation prevents a change in the state of the second field to the third state [status of ED, the second state, can not be changed until the receipt of an updated copy, a new status encoding of M, the third state, may be reassigned to the data portion (paragraph 0051)].

**As to claim 14**, Jamil discloses the computer-readable medium of claim 13, wherein during the data processing operation the block is removed if storing of a data object is committed [if a data portion is written back to shared storage, committed, from private storage, an initial status of ED may be assigned a new status of M according to transition 321, i.e. remove block, (paragraph 0039)].

**As to claim 15**, Jamil discloses the computer-readable medium of claim 13, wherein during the data processing operation the block is irreversibly set if the electronic data element is in the third state [if a data portion is written back to shared storage, committed, from private storage, an initial status of ED may be assigned a new status of M according to transition 321, i.e. remove block, (paragraph 0039)].

Art Unit: 2166

**As to claim 16**, Jamil discloses the computer-readable medium of claim 1, wherein during a data processing operation the electronic data element is shared locked [a data portion having an initial status of S may be reassigned a status of S according to transition 355 if the data request from private storage is not a request for ownership with a right to modify the data portion, (paragraph 0038)].

**As to claim 17**, Jamil discloses the computer-readable medium of claim 16, wherein during a data processing operation the electronic data element is shared locked prior to assignment of the electronic data element to a data object [a data portion having an initial status of S may be reassigned a status of S according to transition 355 if the data request from private storage is not a request for ownership with a right to modify the data portion, (paragraph 0038)].

**As to claim 18**, Jamil discloses the computer-readable medium of claim 17, wherein during the data processing operation the electronic data element is shared unlocked after storing of the data object is committed [if a data portion is written back to shared storage, committed, from private storage, an initial status of ED may be assigned a new status of M according to transition 321, i.e. remove block, (paragraph 0039)].

**As to claim 19**, Jamil discloses the computer-readable medium of claim 17, wherein during the data processing operation, the state of the share lock of the data element is examined prior to assignment of the electronic data element to a data object [paragraph 0027-0028].

Art Unit: 2166

As to claim 20, Jamil discloses the computer-readable medium of claim 1, wherein during a data processing operation the electronic data elements are replicated from a source system to a target system [Jamil teaches the following: First, figures 9a~9c show a plurality of data objects associated with storage elements 910~980 and figure 9d shows a plurality of data objects associated with SCI storage elements 901~908. Second, figures 10~11 show that data objects may be copied, or replicated, from MSI storage elements 1011~1017 to the shared storage elements 1010 and 1015, and figure 12 show that data objects may be copied, or replicated, from CSI storage elements 1211~1217 to the shared storage elements 1210 and 1215.

Third, the direction of copying or replication may be reversed. Thus, the MSI/SCI storage elements and the respective shared storage elements form a pair of "source" and "target" systems, depending on the direction of copying or replication].

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jamil as applied to claim 1 above, and further in view of Cuthbert et al. (US Patent 5,522,077, hereinafter Cuthbert).

Art Unit: 2166

As to claims 4 and 21-22, Jamil discloses the elements of claim 1 as noted above but does not explicitly disclose wherein the electronic data element is implemented in object orientated programming as an instance of a class, wherein the identifier of the first data field comprises a globally unique identifier or a time stamp.

However, Cuthbert discloses generating globally unique identifiers for objects in a distributed object oriented database [column 2, lines 23-29] and object identifier can also be formed by concatenating a processor identifier with a date -time stamp. Since each processor on the network has a unique identifier (for the purpose of network communication) and since the date -time stamp is monotonically increasing, each identifier created is guaranteed to be unique [column 1, lines 41-54].

It would have been obvious to one with ordinary skill in the art at the time of the invention to combine Jamil and Cuthbert because both references are related to accessing shared data, and by including a globally unique identifier or a time stamp as disclosed in Cuthbert, the globally unique identifier or the time stamp can be more efficient to identify objects which the requesting client process is accessing [column 2, lines 30-37]. It is for this reason that one of ordinary skill in the art would have been motivated to include either a globally unique identifier or a time stamp as identifier.

#### ***Related Prior Arts***

The following list of prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2166

- Moshaiov; Lior et al., US 6256634 B1, "Method and system for purging tombstones for deleted data items in a replicated database".
- McLaughlin, Jr.; Michael James, US 7206805 B1, "Asynchronous transcription object management system".

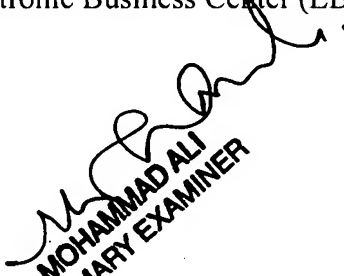
### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shew-Fen Lin whose telephone number is 571-272-2672. The examiner can normally be reached on 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 27, 2007

  
**MOHAMMAD ALI**  
**PRIMARY EXAMINER**

Shew-Fen Lin  
Patent Examiner  
Art Unit 2166